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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/904,067 | 07/11/2001 | Asad M. Madni | 09081.0005 | 1896 |

7590 08/26/2003

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EXAMINER


DAVIS, OCTAVIA L

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2855

DATE MAILED: 08/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|---|
| Office Action Summary | Application No. 09/904,067 | Applicant(s) MADNI ET AL. | |
| | Examiner Octavia Davis | Art Unit 2855 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 - 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montagu et al in view of Kovacich et al and Takahashi.

Regarding claims 1 and 4 - 6, Montagu et al disclose a capacitive transducer system comprising a dielectric member 7 having a circular disk shape and including non-truncated segment portions 16, the dielectric member mounted for rotation with a first half of a shaft 9, a pair of sensor plates 1, 2 encircling a first half of the shaft, an opposed capacitor plate 4 encircling the second shaft half, a ring capacitive plate member 8 encircling the shaft and circuitry means (See Cols. 5 - 7, lines 63 - 67, 1 - 2 and 17 - 50) for comparing the capacitances formed between the pair of sensor plates and the opposed capacitor plate but does not disclose a pair of first and second apertured conductive disks caging said dielectric disk and mounted for rotation with the second half of the shaft, a pair of concentric capacitor plate rings lying in a common plane encircling the first half of the shaft and juxtaposed with the first apertured conductive disk and an opposed capacitor plate encircling the second shaft half and juxtaposed with the second apertured conductive disk, each aperture of the respective conductive disk arranged in a pair of rings that match the pair of capacitor

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plate rings, each aperture alternating with conductive portions around a circle and the rings being offset from one another. However, Kovacich et al disclose a torque sensor comprising a pair of first and second conductive disks 142, 146 caging a member 136 (which includes dielectric members as illustrated in Figs. 3 - 5) and mounted for rotation with the second half of a torsionally strained element 132, a pair of capacitor plate rings 150, 156 lying in a common plane encircling the first half of the element 132 and juxtaposed with the first conductive disk 142 and an opposed capacitor plate 144 encircling the second shaft half and juxtaposed with the second conductive disk 146 (See Fig. 7) (See Col. 5, lines 1 - 23). Although the disks of Kovacich are not apertured, Takahashi discloses disc members 231 and 232 which are bored at the center and contain apertures 234 and 235, each aperture of the respective conductive disk being arranged in a pair of ring shaped members 24, 25 (See Fig. 2) that serve as variable capacitance elements together with plates 20, 21, each aperture alternating with conductive portions around a circle and the rings being offset from one another (See Fig. 3) (See Col. 4, lines 1 - 13).

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Montagu et al according to the teachings of Kovacich et al and Takahashi for the purposes of, employing a torque sensor having a structural arrangement advantage that limits processing steps (See Kovacich, Col. 6, lines 35 - 37), that provides an electrical indication of torsional strain in a member subjected to an applied torque in a manner that provides a high degree of sensitivity and utilizing slits or sectoral apertures to enable a drive shaft to freely rotate therethrough (See Takahashi, Col. 3, lines 64 - 67).

Regarding claims 2 and 3, in Takahashi, the apertured conductive disks 231 and 232 have identical aperture patterns, which are aligned with each other (See Fig. 2).

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Regarding claim 7, in Takahashi, under zero torque condition, one half of each of apertures 28, 28' is covered by spokes to provide equal values of capacitance (See Col. 4, lines 41 - 48).

Regarding claim 8, in Takahashi, when applied torque is a maximum in one rotational direction the apertures of one ring are covered and the other ring apertures are minimally covered, with applied maximum torque in the opposite direction the opposite covering of apertures occurs (See Cols. 4 and 5, lines 62 - 68 and 1 - 20).

Response to Arguments

3. Applicant's arguments filed 7/3/03 have been fully considered but they are not persuasive. In response to applicant's arguments that the references do not disclose disks forming a cage for the dielectric disk, measurement of torque or a steering shaft with a torsion bar, or capacitor plate rings, it is the examiner's position that the invention of Montagu et al, is applicable to capacitive transducers employed with torque motors (See Col. 3, lines 16-18), the invention of Kovacich et al, is drawn to a torque sensor 10 employing a piezoelectric element 12 which is capacitively coupled via a rotary capacitor to an external detection circuit (See Col. 2, lines 2 - 7) and the conductive electrodes 142, 146 are in the form of discs or plates caging a torsion member 132 and a torsionally strained element (a transducer subassembly) 136, the member is mounted for rotation with a first half of a shaft 132 (See Col. 5, lines 1 - 13, See Fig. 7), and the invention of Takahashi is cited to illustrate known apertured conductive disks, which constitute 231, 232, thus the references still stand.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

4. Any inquiry concerning this communication should be directed to Examiner Octavia Davis at telephone number (703) 306 - 5896. The examiner can normally be reached on Monday - Thursdays (9:00 - 5:00), Fridays off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz, can be reached on (703) 305 - 4816. The fax phone number for the organization where this application or proceeding is assigned is (703) 746 - 4409.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 - 0956.



OD/2855

8/15/03


MAX NOORI
PRIMARY EXAMINER